

**What is claimed:**

1           1.       Electromechanical valve control actuator for internal combustion engines,  
2       comprising a electromagnet (200, 300, 400, 500, 600, 700, 1006) with a magnet (202,  
3       204, 206, 302, 402, 502, 702, 1001, 1002) and with a mobile magnetic plate (210, 310,  
4       610, 710) moving into the vicinity of the electromagnet, the magnet (202, 204, 206, 302,  
5       402, 502, 702, 1001, 1002) being located on a surface of the electromagnet (200, 300,  
6       400, 500, 600, 700, 1006) opposite the plate (210, 310, 610, 710), characterized in that  
7       the electromagnet (200, 300, 400, 500, 600, 700, 1006) comprises a E-shaped magnetic  
8       circuit (208, 304, 404, 602, 704), and the magnet (202, 204, 206, 302, 402, 502, 702,  
9       1001, 1002) being located at the end of a branch of the E-shaped circuit.

1           2.       Actuator in accordance with claim 1, characterized in that a rod is an  
2       integral part of the plate, the rod being located outside the E-shaped circuit.

1           3.       Actuator in accordance with claim 1 or 2, characterized in that a plurality of  
2       branches of the circuit are equipped with a magnet.

1           4.       Actuator in accordance with claim 1, 2 or 3, characterized in that at least  
2       one said magnet has a cross section ( $S_a$ ) larger than the cross section ( $2S_c$ ) of the branch  
3       on which it is located.

1           5.       Actuator in accordance with one of the claims 1 through 4, characterized in  
2       that the plate (610) has a cross section ( $S_p$ ) that is smaller than the cross section ( $S_e$ ) of  
3       the end branches (606) of the E-shaped support.

1           6.       Actuator in accordance with one of the claims 1 through 5, characterized in  
2       that the cross section ( $S_e$ ) of an end branch of the support is smaller than half the cross  
3       section ( $2S_c$ ) of the central branch of the support.

1           7.       Actuator in accordance with one of the claims 1 through 6, characterized in  
2       that the cross section ( $S_e$ ) of the junction between an end branch of the support and the  
3       central branch of the E-shaped support is smaller than half the cross section ( $2S_c$ ) of the  
4       central branch of the support.

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- 1           8.       Internal combustion engine comprising an electromechanical valve control
- 2    actuator equipped with an electromagnet with a magnet and with a mobile magnetic plate
- 3    coming into the vicinity of the electromagnet, characterized in that the actuator is in
- 4    accordance with one of the claims 1 through 7.